Change Requested by: Engineer

CONTRACT CHANGE ORDER

CCO: 152 Suppl. No. 0

Contract No. 04 - 0120F4

Road SF-80-13.2/13.9

FED. AID LOC .:

To: AMERICAN BRIDGE/FLUOR ENTERPRISES INC A JOINT VENTURE

You are directed to make the following changes from the plans and specifications or do the following described work not included in the plans and specifications for this contract.

NOTE: This change order is not effective until approved by the Engineer.

Description of work to be done, estimate of quantities and prices to be paid. (Segregate between additional work at contract price, agreed price and force account.) Unless otherwise stated, rates for rental of equipment cover only such time as equipment is actually used and no allowance will be made for idle time. This last percentage shown is the net accumulated increase or decrease from the original quantity in the Engineer's Estimate.

Adjustment of Compensation at Lump Sum Price

The Electroslag Welding (ESW) requirements in Section 10-1.59, "Steel Structures," of the Special Provisions shall be revised for this Contract.

- 1. Item F under the subheading "General Provisions" in the "Shop Welding" subsection shall be revised as follows:
 - F. Narrow-Gap Improved Electroslag Welding (NGI-ESW) welding process developed by FHWA will be permitted for the field welds between the T1 tower shafts and the T1 tower shear plates upon approval from the Engineer. Electroslag (ESW) or electrogas (EGW) welding will not be permitted elsewhere unless approved in writing by the Engineer. If the Contractor proposes to use electroslag or electrogas welding process at any location within the structure, a "Feasibility Review" proposal shall be submitted to the Engineer that includes the location, WPS, drawings of the joint fit-up, all welding aids, and documented evidence that the process has met the required mechanical properties, including toughness, and soundness criteria. If the Engineer approves the Feasibility Review proposal, then the Contractor shall submit to the Engineer for approval a complete ESW/EGW welding plan that includes the following.
 - 1. WPS including the consumable guide configuration and material specification used for the consumable guide; number of electrodes; flux type, amount of flux added before the start of welding, and subsequent flux feed rate; joint details, including plate thickness(es); base metal; electrode designation, composition, diameter, manufacturer, product name; wire feed speed; type and polarity of current; voltage; details of reinforcement groove dimensions of water-cooled copper shoes and coolant flow rate; type of sealing material used to prevent slag run-outs; accessories used within the weld zone, including insulating material.
 - 2. PQR qualification test plates; Plates used to qualify ESW WPSs shall conform to AWS D 1.5, Figure 5.1, except the plates shall have a square butt preparation without steel backing. AWS D1.5, Figure 5.1 shall also qualify ESW "T" weld joints. Test plates shall have sufficient length of weld to allow the machining and testing of eight CVN test specimens. Before preparing mechanical test specimens, the qualification test plate shall be radiographed in conformance with the provisions of AWS D1.5, Clause 6, except that test plates used to qualify ESW WPSs shall also be ultrasonically inspected. Weld quality shall meet the applicable requirements of AWS D1.5, Clause 6.26.
 - Mock-up qualification test piece; A mock-up weld is required for each type of joint geometry as determined by the Engineer. Evaluation of the mock-up weld shall comprise NDT using the procedure that will be used in production, and 6 macroetch specimens taken at locations determined by the Engineer.
 - 4. All tolerances including finished weld profile
 - 5. All QC inspection hold points and report format
 - 6. Welding operator qualification reports
 - 7. All NDT procedures complete with details illustrating how the entire weld and heat affected zone shall be examined.
 - 8. Repair procedures for minor and major repairs.
 - 9. Post Weld Heat Treatment (PWHT) of completed welds for duration of 24 hours at temperature range from 500 to 600°F. The PWHT shall be applied prior to welds cooling to the PWHT temperature. The NGI-ESW process, as developed in the Federal Highway Administration (FHWA) project, is the only ESW process that will be considered. Restarts in ESW or EGW welds will not be permitted.

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- 2. The table in the "Inspection and Testing" subsection shall be revised by adding Note 11a to the notes as follows:
 - 11a. AWS D1.5 Table 6.2 shall be revised to include the following note: 5. ESW welds: Flaws detected at "scanning level" which exceed 50 mm [2 in.] in length shall be suspected as being piping porosity and shall be further evaluated with RT.

There shall be no change in cost to the Department by reason of this Change Order.

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Estimated Cost	: Increase 🛛 Decrease 🗌	\$0.00
By reason of this order the time of completion will be adjusted as follows:	days	
Submitted by		
Signature Senior Bridge Engineer	Mark Woods, Senior B.E.	Date 7/12/10
Approval Recommended by		1 //
Signature Supervising Bridge Engi	neer Richard Morrow, Sup. B.E.	Date 7/12/10
Engineer Approval by		
Signature Supervising Transportati	ion Engineer	-1 - 1
The Top	Gary Pursell, Sup. T.E.	Date 10
We the undersigned contractor, have given careful consideration to the change propose equipment, furnish the materials, except as otherwise be noted above, and perform all s full payment therefor the prices shown above.	d and agree, if this proposal is approved ervices necessary for the work above sp	, that we will provide all ecified, and will accept as
NOTE: If you, the contractor, do not sign acceptance of this order, your attention proceeding with the ordered work and filing a written protest within the time there	is directed to the requirements of the in specified.	specifications as to
Contractor Acceptance by		
Signature (Print name and title) Weart Cold Prem der Waart va	n Gultle Deputy Profe	Date 7/15/10